

TESTIMONY OF RICHARD F. WALSH, DIRECTOR, OFFICE OF ECONOMICS,  
U.S. DEPARTMENT OF TRANSPORTATION, BEFORE THE HOUSE COMMITTEE ON  
ENERGY AND COMMERCE, SUBCOMMITTEE ON ENERGY CONSERVATION AND  
POWER, ON LEGISLATION CONCERNING DAYLIGHT SAVING TIME

FEBRUARY 23, 1983

Mr. Chairman and Members of the Committee:

I am pleased to appear before you today to discuss the possible extension of the traditional six-month daylight saving time to an eight-month period of observance. I am accompanied by Robert I. Ross of the General Counsel's Office, which has the responsibility within the Department for interpreting the various time laws; and by Nancy Ebersole of my Review and Analysis Division. Ms. Ebersole served as Study Co-Director for the DOT report on daylight saving time which was completed in 1975.

Before discussing the findings of our daylight saving time study, I would like to summarize briefly the nation's historical experience with daylight saving time and the issues involved in future decision-making on this subject.

During World Wars I and II, daylight saving time was observed on a national basis. In 1966, the Congress, through the Uniform Time Act, provided for the first nationwide observance of daylight saving time during peacetime. That Act established daylight saving time for six months of the year (from the last Sunday in April through the last Sunday in October). This arrangement remained in effect until 1973 when the Congress enacted the Emergency Daylight Saving Time Energy Conservation Act. This Act changed the period of observance from the six-month, May to October period to year-round for a two-year trial period. After evaluating the first four months of the experiment (from

January to April 1974), we reported to the Congress that the public appeared to oppose daylight saving time in January and February, while favoring it in March and April. As a result, the Department recommended, and the Congress subsequently adopted an eight-month system of daylight saving time (March through October) for 1975.

Following an analysis of the second year of experience with an extended period of daylight saving time, focusing on the months of March and April 1975, we found that a majority of the public had responded favorably to the eight-month experiment. We also concluded that modest but positive savings in energy use, traffic fatalities, and violent crime might be realized by a permanent shift from the historic six-month period of observance to an eight-month period.

I want to emphasize, however, we were unable to establish conclusive evidence that would argue strongly for a permanent change in the Uniform Time Act. The potential benefits of an extended period of daylight saving time were simply too small and difficult to isolate from the larger impacts of seasonal and secular variations and changes in energy availability and prices that were taking place during the experiment. In addition, actual data for some of the impact areas did not become available until well after the experiment ended. The Department's recommendation to the Congress, therefore, was to extend the eight-month daylight saving time experiment for two more years to permit the collection of additional data and to undertake more thorough analysis. The Congress, however, did not act on the Department's recommendation, and the experiment with an eight-month period of observance was abandoned after one year.

It is important to recognize that the primary purpose in extending the daylight saving time period during 1974-75 was to involve the American people actively in an energy conservation effort during the nation's first peacetime fuel shortage. Our study found that a two-month extension of daylight saving time to March and April might save one percent of electrical energy, or the equivalent of 100,000 barrels of oil daily, which was considered significant at a time when our nation was searching desperately for ways to conserve fuel. Today, the country's energy situation has changed and has undergone significant adjustments, especially in the area of conservation, due in large part to the decontrol of fuel prices.

Fuel prices are now, and should continue to be, the main factor in controlling fuel use. However, ancillary conservation measures, such as daylight saving time, can provide the public with opportunities for conserving fuel. Daylight saving time, for example, reduces the need to illuminate homes and businesses by up to an hour per day. Still, the energy savings to be realized from extending daylight saving time would be small compared to those resulting from decontrol. Besides the fuel situation, other circumstances have also changed over the past several years, and it is clear that the decision on daylight saving time that faces us today is not the same one that faced us in 1975.

We still believe the energy and other benefits potentially derivable from an extension of daylight saving time are important. However, the factors underlying public acceptance of daylight saving time and the trade-offs involved in preserving its maximum benefits and satisfying public preferences are best discussed within the context of our overall study findings.

At the outset, it should be underscored that these findings are based primarily on analyses conducted at the time of the 1974-75 experiments. The Department has not engaged in any extensive study of daylight saving time impacts since the experiments, and as mentioned before, conditions and circumstances are obviously different today. Let me now turn to our study's findings.

#### Rationale for Daylight Saving Time System Selection

The traditional six-month daylight saving time system is based on temperature, rather than on hours of daylight. Thus, it provides an equal number of days on either side of the warmest days of the year which tend to occur towards the end of July.

A March to October daylight saving time period would make more sense than the present system, because it would provide an equal number of long daylight days on either side of the longest day of the year. One consideration, therefore, is the desirability of correcting the present imbalance by moving to new transition dates between standard and daylight saving time, on the basis of maximum daylight conditions which exist from March until October.

#### Public Preference for Daylight Saving Time

A second consideration involved in the selection of transition dates is the general public preference for a March to October period of daylight saving time, weighed against some strong minority opposition to extending the length or changing the dates of the period.

Public opinion polls conducted during the 1975 eight-month DST experiment indicated that the public favored daylight saving time from March through October, by a ratio of nearly two to one.

The Roper Organization has conducted two polls on daylight saving time preference since the 1974-75 experiments. Roper polls conducted in March 1976 and March 1980 indicated that almost one-half of the public favored an extended period of daylight saving time from the end of February to the end of October, while approximately one-third of the public preferred a continuation of the present six-month period. Collectively, it appears that rather consistently over this period the public has continued to favor daylight saving time for the additional months of March and April. Nevertheless, opposition to daylight saving time continues to be registered rather consistently as well. During the 1975 experiment, 13 percent of respondents strongly opposed daylight saving time in March and April. In the Roper polls, 17 percent of the public in 1976 and 15 percent in 1980 favored no daylight saving time at all.

Results from the 1974-75 public opinion polls indicated that the largest percentage of respondents opposed to daylight saving time live in areas that experience late sunrise problems under daylight saving time. This is because of their location relative to the standard meridians which define the time zones. These people tend to live near the western boundaries of the Eastern, Central and Mountain Time Zones, where sunrise times are always 30 to 60 minutes later than at the time zone centers. While these people will experience later sunrises than the majority of the population under any time system and, thus, will generally perceive

daylight saving time as a problem, the intensity of this perception will vary depending on the actual clock times of these sunrises, which are controlled by the specific transition dates involved.

Our study findings indicated that a transition to daytime saving time on the first Sunday in March would provide most of the nation with sunrise times which are no later than those occurring at the end of October under the present six-month DST system. The actual clock times of sunrises during the first week in March would average 7:30 a.m. Civil twilight, or dawn, would add thirty minutes of light before sunrise, sufficient to conduct outdoor activities by 7:00 a.m. This should be acceptable to a majority of the public who have indicated a preference for morning light by or before 7:00 a.m.

The main impact of a first Sunday in March transition date would be felt by an estimated 17 percent of U.S. population residing in the western regions of time zones. Those areas would experience an additional week or two of later sunrises averaging 8:00 a.m. with dawn at 7:30 a.m. The occurrence of these late sunrises at the very beginning of the daylight saving time period would cause a somewhat abrupt change in morning lighting conditions, as sunrises would have gradually grown earlier from January through February, only to become suddenly later again with the advent of daylight saving time in March. Discomfort over later sunrises should be fairly short-lived, however, as morning light conditions improve more rapidly in March than in any other month of the year.

By the fourth week in March, DST sunrise times throughout most of the nation would average 7:00 a.m., with dawn occurring at 6:30 a.m., while populations in the western regions of time zones would

average 7:30 a.m. sunrises, with dawn at 7:00 a.m. The presence of morning light by 6:30 to 7:00 a.m. should satisfy the public preference for light by or before 7:00 a.m.

Let me now briefly summarize the technical findings regarding daylight saving time benefits.

### Energy Savings

As I have mentioned, we concluded that daylight saving time results in likely electricity savings of 1 percent in March and April, equivalent to roughly 100,000 barrels of oil per day or 6 million barrels over the two months. These savings were calculated from Federal Power Commission data for the four daylight saving time transitions in the winter, spring and fall of the 1974-1975 experiment. Due to this limited data sample, the findings were judged "probable", rather than conclusive. Theoretical studies of home heating fuel consumption identified small savings due to daylight saving time. No potential increases in travel demand and gasoline use due to daylight saving time were identified. Overall, the lack of actual data precluded a reliable estimation of total energy savings due to daylight saving time.

### Motor Vehicle Fatalities, Total Population

With respect to motor vehicle safety, we were able to identify a 0.7 percent reduction in traffic fatalities due to daylight saving time in March and April 1974 compared to the comparable months in 1973 when we were under standard time. I should add that our analysts believe

that these estimates are conservative and that their calculations understated the real reduction due to daylight saving time which they judged to be on the order of 1.5 percent to 2 percent of traffic fatalities.

### School-Age Children Safety

Following the experiment with year-round daylight saving time in 1974, we recommended that only March and April be included in the 1975 experiment because of the public's concern over the safety of children traveling to school on dark mornings. Results of public opinion polls conducted in 1974 showed that 38 percent of respondents expressed concern for school children's safety during year-round daylight saving time, compared to 7 percent of respondents concerned with the issue during the 1975 March-April experiment.

Our final report contained results of both the Department of Transportation and the National Safety Council studies indicating that for the January-April 1974 period (i.e., under daylight saving time), school-age children were not subject to greater involvement in fatal accidents than the general population at any period of the day. A 1976 study of school-age fatalities performed by the National Bureau of Standards (NBS) used the same data base as the Department of Transportation, but analyzed only a subset of child fatalities in isolation from the general population and employed different statistical techniques. The National Bureau of Standards concluded that morning school-children fatalities increased in January and February 1974 when daylight saving time was being observed, compared to the same period in 1973 when we were under standard time. No comparable increase in



morning fatalities, however, was found for the March and April period. While the increase was statistically significant, the National Bureau of Standards judged it impossible to attribute it to daylight saving time rather than to some other factor or combination thereof. I should note that we did not agree with the methods and assumptions used by the Bureau to estimate these impacts. However, because of public concern for the safety of school children, the Department subsequently took the position that daylight saving time in January or February would not be desirable.

### Crime

With respect to the incidence of crime, a study of daylight saving time impacts showed reductions in violent crimes of 10 to 13 percent in Washington, D.C. throughout a three year period from 1973 to 1975. Due to time constraints, only data for Washington, D.C. and Los Angeles were obtained for analysis during our study. Subsequently, we found that the data for Los Angeles were not sufficiently detailed to reveal a daylight saving time effect.

### Changes in School Hours

With respect to school schedules, the Department of Health, Education and Welfare advised that only a small number of schools in two Midwest and Western States adjusted school hours during March and April 1975 as a consequence of daylight saving time.

### Other Effects

There were no measurable effects of daylight saving time reported by Federal agencies in the areas of agriculture, labor, and Federal

park and recreational activities. Neither were there any reported effects on domestic or international commerce, with the exception of the construction industry, which was opposed to year-round daylight saving time, favoring instead an April through October period.

### International

A more recent factor for consideration in extending daylight saving time into March is the vote by the ten Common Market Nations to join eleven other European nations in observing a uniform date for beginning summer daylight saving time in late March from 1983 to 1985. A DST transition in March would preserve existing levels of time uniformity between the U.S. and its major allies and trade partners, and would reduce the need for revisions in international travel schedules and associated inconveniences for travelers.

### Communications

The Federal Communications Commission (FCC) reported that daylight saving time caused audience losses of 2.5 percent of AM daytime radio stations from January through April 1974 and 1.5 percent during March and April 1975. Since the Commission's primary concern is daylight saving time's curtailment of AM morning radio service to listeners in certain areas of the country served by approximately 450 daytime stations, it supports the traditional six-month daylight saving time system or the enactment of specific provisions enabling it to take remedial steps as appropriate.

### Administrative Effects

The Governors of the twenty-five States bordering or divided by time zone boundaries were asked whether these boundaries should be changed. It is significant that even though these States experience the latest in daylight saving time sunrises, the Governors, with one exception, favored retaining the present time zone boundaries. The exception advocated having only two continental time zones. Based on this survey, the Department did not recommend any change in the existing time zone boundaries.

### Summary of Findings

Let me summarize the findings which bear on the extension of daylight saving time into March and April:

- (1) The Department's studies of the various impact areas found no significant costs from extending daylight saving time to these months.
- (2) Public opinion polls from 1974 to 1980 indicate a favorable public reaction to the observance of daylight saving time in March and April. The public has also consistently recorded its approval of daylight saving time in September and October.
- (3) In the key impact areas of electricity usage, motor vehicle fatalities and crime, our studies found a consistent pattern of small, positive effects from daylight saving time. Furthermore, we found no evidence of an increase in school-age children fatalities in March or April under daylight saving time.

- (4) A March to October daylight saving time period would be more logical than the present system for "saving" daylight because it would provide an equal number of days with long daylight hours on either side of the longest day of the year.

#### Recommendations

Mr. Chairman, The Department of Transportation supports an eight-month daylight saving time period beginning on the first Sunday in March and extending to the last Sunday in October. These dates would preserve the maximum daylight saving time benefits, and provide most of the nation with sunrise times which are no later than those already being experienced in October under the present six-month system. This change would satisfy the general public preference for an extended period of daylight saving time. A decision to extend the system will of course involve tradeoffs to weigh potential reductions in fatalities and crimes, and other national benefits, against the opposition from those who will experience late sunrise problems at the beginning of March.

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Mr. Chairman, this completes my prepared statement. My colleagues and I would be happy to try to answer any questions you might have.